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ABSTRACT

Random parallel reading comprehension tests in Japanese and English were administered to a sample of native Japanese students enrolled in intensive English instruction. The students had been placed at three different levels of English language proficiency based on an independent proficiency assessment measure. Evidence for a threshold competency ceiling at which first language reading abilities transferred to second language reading abilities was found. At the highest proficiency level, those readers scoring high on the first language reading test also systematically scored high on the second language reading test. The findings indicate that studies of this nature must be conducted with subjects at different proficiency levels. In addition, evidence that imperfect knowledge of the second language can cause difficulty in second language reading emerged. Pedagogical implications are discussed. (Author/MSE)

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FIRST AND SECOND LANGUAGE READING COMPREHENSION

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First and Second Language Reading Comprehension

Abstract

Random parallel reading comprehension tests in Japanese and English were administered to a sample of native Japanese students enrolled in intensive English instruction at three different levels of English language proficiency as assessed by an independent measure. Evidence for a threshold competence ceiling at which first language reading abilities transferred to second language reading abilities was found. At the highest proficiency level, those readers who scored high on the first language reading test also systematically scored high on the second language reading test. Pedagogical implications of the study are discussed.

This paper reports the results of a study whose purpose was to investigate the relationship between reading in the first language and reading in the second language when the same individuals are assessed in both languages. For at least twenty years the issue of whether reading proficiency in second language vitally depends upon reading proficiency in the first language has been a principal concern in the second language reading research community (for example, Alderson, 1984; Clarke, 1979, 1980; Coady, 1979; Cziko, 1978, 1980; Yorio, 1971).

Alderson's (1984) article provided the impetus for the research reported in this paper. In that paper Alderson set out the following two competing hypotheses:

> 1. Poor reading in a foreign language is due to poor reading ability in the first language. Poor first language readers will read poorly in the foreign language and good first-language readers will read well in the foreign language.
> 2. Poor reading in a foreign language is due to inadequate knowledge of the target language (p.4).

Coady (1979) and Yorio (1971) provide good benchmark representations of the opposing viewpoints of this situation. Coady holds the position that second language reading is a reading comprehension problem. Coady's psycholinguistic perspective is that reading is an

interactive complex of abilities/skills and knowledge, some of which has a linguistic nature.

Coady lays a heavy emphasis on the readers' store of textually relevant background knowledge and attained reading comprehension proficiency in the first language, although he does concede that second language readers may lack attained competence in "process strategies which involve substantial knowledge of the target language." (p.8).

Coady's position is summarized in the following quote:

> We have only recently come to realize that many students have very poor reading habits to transfer from their first language, and thus, in many cases, we must teach reading skills which should have been learned in first language instruction (p. 12).

Yorio's position is at the opposite pole of the continuum, or dichotomy, if one chooses to interpret this research issue as being manifested by binary positions. Yorio contends that second language readers' difficulties can be explained by second language interference and the readers' lack of sufficient second language competence.

Yorio's position is summarized in the following quote:

> The reader's knowledge of the foreign language is not like that of the native speaker; the guessing or predicting ability necessary to pick up the correct cues is hindered by the imperfect knowledge of the language; the wrong choice of

> cues or the uncertainty of the choice makes associations more difficult; due to unfamiliarity with the material and the lack of training, the memory span in a foreign language in the early stages of its acquisition is usually shorter than in our native language: recollection of previous cues then is more difficult in a foreign language than in the mother tongue; and at all levels, and at all times, there is interference of the native language (p. 108).

From the point of view of second language reading comprehension pedagogy, it logically follows that Coady's and Yorio's positions entail two different pedagogical foci: Coady's position calls for an interactive, top-down, cognition-driven orientation focussing on textually relevant background knowledge, psycholinguistic "guessing-game" skills, (Goodman, 1973), and global comprehension. Yorio's position seems to entail a more data-driven, bottom-up orientation focussing on the knowledge of the language, especially on the code elements or graphic cues which signal meaning in prose text; on the ability to guess, on the ability to remember previously encountered cues, and on the ability to associate the different cues.

Alderson surveyed a large corpus of published research on the question of whether reading difficulties in a second language were due to reading difficulties in the first

language. In the summary that followed the review of the research, Alderson reported that (1) in the bilingual studies, there was "some evidence of transfer of reading ability from one language to another," although "only moderate to low correlations have so far been established between reading ability in the foreign language when the same individuals are studied in both languages" (p. 20); (2) "some evidence, however tentative, suggests that proficiency in the foreign language may be more closely associated with foreign-language reading ability" (p. 20); and (3) "considerable support was found for the hypothesis that some sort of threshold or language competence ceiling [Clarke, 1980; Cummins, 1976; 1979] has to be obtained before existing abilities in the first language can begin to transfer" (p. 20).

The purpose of this research was to ascertain whether readers at different proficiency strata would covary significantly on reading comprehension tests in the first and second languages. In other words, we wanted to discover whether readers who obtained low scores on a reading comprehension test in their native language would also obtain low scores on a reading comprehension test in their second language, and vice versa; and further, whether or not this covariance exists across different proficiency strata. This research was intended to continue the research paradigm presented by Alderson and, hopefully, to further inform the threshold issue spoken to by Alderson, Clarke, and Cummins.

Method

Subjects

The subjects for this study were 158 Japanese students enrolled in the Southern Illlinois University at Carbondale in Niigata, Japan intensive English program. The method of selection was the natural assembly process. All students who sat for the two examinations were included in the sample: no aberrant or skewed data were purged from the data set which was analyzed and reported.

The subjects were placed into three different proficiency strata by an independent measure, the TOEFL test. Those students who scored in the 0 - 374 TOEFL interval were placed into proficiency level 1, n = 32; in the 375 - 429 TOEFL interval, proficiency level 2, n = 106; and, in the 430 - 469 TOEFL interval, proficiency level 3, n = 20. At the time of this study each student had received 5 hours of weekly reading instruction over a period of 27 weeks, or three terms.

Instrumentation

Two fifty-item random parallel reading comprehension tests were constructed as the elicitation instruments for this study. Random parallel tests are composed of items "drawn randomly from the same population of items. Tests are said to be randomly parallel when the same numbers of items with equivalent content are randomly drawn from a pool

of such items" (Henning, 1987, pp. 81-82). One of the tests was translated into Japanese and is referred to as the L1 (= first language) test. The L1 test's instructions, reading passages, questions, and responses were in Japanese. The other test, the L2 test, was totally in English.

By constructing random parallel tests we hoped to hold all factors constant, in both tests, save for the language. The content of the passages in both tests reflected similar subject matter; the readability level for both tests was the same, grade 10, estimated by the McLaughlin (1969) method; the same skills were assessed by both tests (facts, inferences, and generalizations); and finally, any bias in content and formal schemata (Carrell, 1987) was held constant in both tests. That is, any bias (positive or negative for Japanese readers) in subject matter and text properties remained constant in both tests.

The L1 test contained 18 fact items; 16 inference items; and 16 generalization items; the L2 test contained 15 fact items; 15 inference items; and 20 generalization items.

The fact items required the subjects to recognize and to comprehend the literal meaning of stated factual details; the inference items entailed the inferring and the interpretation of underlying relationships; and the genralization items required the subjects to evaluate and to generalize from text. The fact questions were basically who?, what?, when?, where? questions. The inference

questions were why? questions. The generalization questions involved evaluative meaning.

During the testing sessions, the L1 and L2 tests were counterbalanced to preclude response set.

Procedures

The Pearson product-moment correlation procedure was utlized to analyze the data. The criterion level of significance was set at the .05 level in advance.

Results

(Put Table 1 about here)

Table 1 presents the mean percentages correct for the different categories of items and totals for the two tests for the different proficiency levels.

(Put tables 2, 3, and 4 about here)

Tables 2, 3, and 4 present the correlation matrices for the different categories of items and totals for the two tests, again for the three different proficiency levels.

The columns of means in Table 1 present quite startling data. It is obvious that the three different groups of students experienced more difficulty with the L2 test than

with the L1 test although the L2 test was a parallel (to the L1) test in all respects. These data lend credence to Yorio's proposition that second language reading problems are largely accounted for by the second language learners' imperfect control of the target language. An additional observation in Table 1 merits comment. As one reads from top to bottom, as the proficiency increases, as measured by the TOEFL the mean scores increase in both the L1 and L2 categories, but our focus in this paper is not on between-group comparisons and analyses.

Our purpose in conducting this research was to investigate the extent to which our subjects' scores from the L1 test tended to covary with the scores from the L2 test. This is, we wanted to know if a reader who obtained a high score on the L1 test would also obtain a high score on the L2 test, although the scoring continuum on the L2 test might be much more restricted in range than the L1 test. For that reason we used a correlational analysis and did not concern ourselves with t-tests or ANOVA to determine if there were significant differences between the L1 and L2 scores, because the differences are almost certainly significant.

To confirm or to disconfirm Alderson's hypothesis that "poor first-language readers will read poorly in the foreign language and good first language readers will read well in the foreign language," we need to observe the boxed diagonals in Tables 2, 3, and 4. The boxed diagonals are

the coefficients for the L1-L2 similar categories of items. An inspection of the boxed diagonals in Table 2 (proficiency Level 1) indicates that there was no systematic relationship or covariance between the L1 and L2 measures of readng. The L2 subtests (Fact, Inference, and Generalizations) did correlate significantly with the L2 total, but that is to be expected, and these correlation coefficients are spuriously high because they have not been adjusted for part-whole overlap.

An inspection of Table 3 (proficiency level 2) indicates that three of the four boxed diagonals contained coefficients that are significant at the .05 level: L1 and L2 Fact, L1 and L2 Inference, and L1 and L2 Total. At first blush, it appears that the 375-429 TOEFL interval is the threshold ceiling which must be obtained before existing abilities in the first language begin to transfer to the second language. Our reservation is based solely on the fact that the magnitude of these correlations is not very large, although they reach significance. With 104 degrees of freedom a very small coefficient reaches significance. We believe that in studies of this nature one must consider both the size and the significance of the correlation coefficient; therefore, we are reluctant to claim that a transfer of reading skills has begun at this level.

Table 4 (proficiency level 3) presents conclusive evidence that a transfer of reading skills has begun at the 430-469 TOEFL interval. The following boxed diagonals have

coefficients of fairly large magnitudes, and they are significant: L1 and L2 Inference; L1 and L2 Generalizations; and L1 and L2 Total.

Had we a subject pool from the higher TOEFL intervals, 470-524 and 525-up, we think that we would have obtained high, significant correlation coefficients for all categories, given the trend established by the lower proficiency levels, but absent a data set to analyze, we treat this proposition as mere speculation.

Summary

We think that we have uncovered evidence that supports both Alderson hypotheses: "poor first-language readers will read poorly in the foreign language" and vice versa, and "poor reading in a foreign language is due to inadequate knowledge of the target language." First, we found systematic variation in L1 and L2 reading skills at the 430-469 TOEFL interval, and at the 375-429 interval, if one is willing to accept very small, although significant correlation coefficients. In sum, we uncovered a threshold ceiling level for transfer. Our results indicate that studies of this nature must be conducted with subjects from different levels of proficiency. Second, we found evidence that imperfect knowledge of the second language can cause difficulty in second language reading. The L2 mean scores for all categories for all proficiency levels were much lower (probably significantly lower) than the L1 mean

scores, and the two tests were parallel save for the language.

Not all in-service ESL reading teachers may be keen on theoretical reading studies; therefore, we will attempt to bridge the gap between theory and practice by spiralling back to the two pedagogical foci suggested by Coady's and Yorio's positions on the second language process. We believe that the results of this study discussed above suggest that all these subjects need focussed work on the use of content and formal schemata and global comprehension, i.e., a cognition-driven, top-down orientation, and focussed work on the code elements, i.e., a data-driven, bottom-up orientation, especially at the lowest proficiency level. There is yet another reason to suggest the use of these two orientations. Rummelhart's (1977) research on an interactive model of reading has shown that proficient readers employ both top-down and bottom-up processing strategies.

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Table 1
Percentages Correct

Prof Level	L1 Fact	L1 Infer.	L1 Gen.	L1 Total	L2 Fact	L2 Infer.	L2 Gen.	L2 Total
1 TOEFL 0-374 n=32	$\bar{x}$=72.41 s=13.66	82.00 10.77	75.34 12.79	76.31 10.81	41.47 15.23	28.71 13.80	25.91 11.45	31.56 8.76
2 TOEFL 375-429 n=106	$\bar{x}$=75.33 s=11.89	85.15 10.27	79.07 12.97	80.52 13.98	49.60 13.71	33.63 12.76	27.51 11.65	35.64 9.33
3 TOEFL 430-469 n=20	$\bar{x}$=80.25 s=7.31	89.50 8.66	84.95 8.78	84.50 6.54	58.80 14.86	36.50 12.69	33.45 13.27	42.10 8.76

Table 2
Correlation Matrix
Proficiency Level 1

	L1 Fact	L1 Infer.	L1 Gen.	L1 Total	L2 Fact	L2 Infer.	L2 Gen.	L2 Total
L1 Fact	———	r=.6067 p=.0002	.6846 .0001	.9060 .0001	.2628 .1461	.0634 .7303	.1072 .5592	.2051 .2600
L1 Infer.		———	r=.6229 p=.0001	.8181 .0001	.2463 .1741	.2100 .2485	.1858 .3084	.2726 .1311
L1 Gen.			———	r=.8803 p=.0001	.0913 .6191	.1256 .4931	.0149 .9352	.0856 .8040
L1 Total				———	r=.2247 p=.2163	.1527 .4038	.1106 .5466	.1961 .2819
L2 Fact					———	r=-.0097 p=.9576	.2132 .2413	.6307 .0001
L2 Infer.						———	r=.3850 p=.0296	.6255 .0001
L2 Gen.							———	r=.7178 p=.0001
L2 Total								———

Table 3
Correlation Matrix
Proficiency Level 2

	L1 Fact	L1 Infer.	L1 Gen.	L1 Total	L2 Fact	L2 Infer.	L2 Gen.	L2 Total
L1 Fact		r=.4496 p=.0001	.5412 .0001	.6497 .0001	.2600 .0071	.1291 .1869	.1492 .1268	.2537 .0087
L1 Infer.			r=.4026 p=.0001	.5490 .0001	.2465 .0108	.2084 .0320	.0320 .7445	.2030 .0368
L1 Gen.				r=.5343 p=.0001	.1470 .1325	.3194 .0008	.1634 .0942	.2681 .0005
L1 Total					r=.1680 p=.0851	.1534 .1164	.2104 .0304	.2413 .0127
L2 Fact						r=.3438 p=.0003	.3301 .0005	.7431 .0001
L2 Infer.							r=.3620 p=.0001	.7065 .0001
L2 Gen.								r=.7681 p=.0001
L2 Total								

Table 4
Correlation Matrix
Proficiency Level 3

	L1 Fact	L1 Infer.	L1 Gen.	L1 Total	L2 Fact	L2 Infer.	L2 Gen.	L2 Total
L1 Fact	_____	r=.4803 p=.0321	.3441 .1373	.7373 .0002	.4343 .0556	.3293 .1562	.3455 .1356	.4721 .0356
L1 Infer.		_____	r=.6066 p=.0046	.8676 .0001	.4594 .0415	.4384 .0531	.2960 .2051	.5678 .0090
L1 Gen.			_____	r=.8094 p=.0001	.3446 .1367	.1583 .5048	.5258 .0172	.4691 .0369
L1 Total				_____	r=.5167 p=.0196	.4031 .0780	.4913 .0278	.6408 .0023
L2 Fact					_____	r=.3917 p=.0876	.0541 .8208	.7061 .0005
L2 Infer.						_____	r=.2153 p=.3619	.7079 .0005
L2 Gen.							_____	r=.6257 p=.0003
L2 Total								